



**Minuteman  
Repeater  
Association**

**The  
Minuteman**



Volume 50      Number 5      May 2021

*The Minuteman Repeater Association is a non-profit organization providing communications infrastructure and volunteers for community and emergency events.*

**Wednesday, 19 May 2021 ~ Annual Meeting ~ 7:30—9:30 pm**

**Officer Elections and Other Relevant MMRA Business**

**Presentation: Ham Radio and Software Defined Radio**

**An Overview, Some History, and a Demonstration**

**Charles Miller      KC1JUO**

**Location: ZOOM — Members: login to the MMRA Webpage for the link**

**Non-members: send an email to [contact@mmra.org](mailto:contact@mmra.org)**

Charles will share a bit about how he sees Ham Radio and Software Defined Radio as not only being connected but also fundamentally similar and complementary. He will present an overview which is essentially his journey and perspectives of the topic. The hope is to share why he finally got licensed, why he thinks the hobby is so fantastic, talk about a few radio frequency bands and describe how they are being used. Charles will wrap up the talk with a demonstration of using software and hardware to compose and view frequency bands discussed.

Charles has been licensed since 2017 with the call sign KC1JUO. During his many decades of tinkering, he has built and broken much. He is a Gordon Engineering Fellow with a Computer Science degree from Boston University and a Master of Information Systems from Northeastern University. His current career focus is on Cyber Systems Engineering, receiving his CISSP certification in 2019. Having spent most of his career as a Technical Consultant prior to 2005, he joined Raytheon in 2005. Raytheon has a long history of Ham Radio relevant technology: Percy L. Spencer (W1GBE) was a critical part of Raytheon's history and has been an inspiration for Charles for both Ham Radio and the exploration of Software Defined Radio.

**MMRA Officer Nominations:**

- |          |                 |                 |
|----------|-----------------|-----------------|
| ♦ N1DCH  | David Hornbaker | President       |
| ♦ WA1MDD | John Spencer    | Vice President  |
| ♦ K1KWP  | Kevin Paetzold  | Treasurer       |
| ♦ W1HFP  | Jason Peardon   | Secretary       |
| ♦ —      | open            | Clerk           |
| ♦ K1IW   | Bob DeMattia    | Director → 2023 |
| ♦ WA1NVC | Roger Coulson   | Director → 2023 |

**Table of Contents**

May Membership Meeting	1
MMRA Information	2, 12, 13
President's Corner	3
March 2021 Membership Meeting	4
Special Meeting — 21 July 2021	5
EME — The Ultimate DX	6-7
Technical Update	8-9
April Business Meeting	10-11
Treasurer's Report	11

**Notes:** FTL = Full Time Linked (or default state) PTL = Part Time Linked (on schedule or demand)  
Note — a repeater can be linked to only one Hub at a time.

## President's Corner ~ David Hornbaker, N1DCH

Happy Spring! I hope all your antenna projects are going well and safely!

The FCC announced that the 2019 FCC Report and Order governing RF safety standards will go into effect on May 3<sup>rd</sup>. More information can be found on the ARRL website <http://www.arrl.org/news/updated-radio-frequency-exposure-rules-become-effective-on-may-3>, the FCC Report and Order can be found at <https://docs.fcc.gov/public/attachments/FCC-19-126A1.pdf>. Dan Brown, W1DAN hosted an RF Exposure Rules Zoom Discussion on April 27<sup>th</sup>. The recording of that event is posted on the Eastern MA ARRL website at: [https://drive.google.com/drive/folders/1\\_qIGZhHyMrha-axJt87Dcu0UZuJO0t8F](https://drive.google.com/drive/folders/1_qIGZhHyMrha-axJt87Dcu0UZuJO0t8F).

Kevin Paetzold, K1KWP will host a rare July MMRA meeting. Kevin will be discussing the MMRA repeater system and control codes available to members. More information is available on page 5.

I would like to welcome the N1IMO-N1IMN repeater network to the Tuesday night TlaOS net, more information can be found on page 13.

Join us Tuesday nights at 8:00 PM for our weekly Technical Information and Other Stuff (TlaOS) net. There will be a lively discussion on all sorts of HAM issues, including equipment, antennas, software, repeaters, and other stuff. The main purpose is to test our ability to link up the repeaters in case of an emergency, or to support some event like a marathon. You can also join via EchoLink if your radio is a little under the weather (or in my case too lazy to walk down to the shack). See page 12 for more information.

You can find out more information about how and when the repeaters are linked on the website ([https://www.mmra.org/repeaters/repeater\\_linking.html](https://www.mmra.org/repeaters/repeater_linking.html)).

The weather at Sligo is now available on our website, check it out at <https://mmra.org/weewx>.

MMRA will continue to have virtual meetings due to the ongoing COVID-19 pandemic.

Due to COVID-19, we do not have access to some repeater sites. Repairs that cannot be done remotely, have been put on hold. Currently, this is preventing replacing a crystal on 224.880 in Burlington and repairing the link radio in Belmont.

Please remember to keep your profile up to date, especially if your email changes. Note that if your callsign changes, send email to [contact@mmra.org](mailto:contact@mmra.org) and we will update your callsign in the database.

73 ~ Dave – N1DCH

## The Amateur's Code

The Radio Amateur is:

**CONSIDERATE**...never knowingly operates in such a way as to lessen the pleasure of others.

**LOYAL**...offers loyalty, encouragement and support to other amateurs, local clubs, and the American Radio Relay League, through which Amateur Radio in the United States is represented nationally and internationally.

**PROGRESSIVE**...with knowledge abreast of science, a well-built and efficient station and operation above reproach.

**FRIENDLY**...slow and patient operating when requested; friendly advice and counsel to the beginner; kindly assistance, cooperation and consideration for the interests of others. These are the hallmarks of the amateur spirit.

**BALANCED**...radio is an avocation, never interfering with duties owed to family, job, school or community.

**PATRIOTIC**...station and skill always ready for service to country and community.

Paul M. Segal, W9EEA, 1928

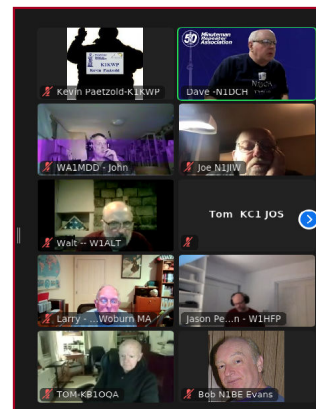


## 17 March 2021 Membership Meeting

### Programming with CHIRP

#### Dave Hornbaker, N1DCH

After introductions, President Dave, N1DCH, thanked *Mark Wyllie – KC1OOB* for designing the new 50<sup>th</sup> anniversary logo. There being no other MMRA business, Dave launched into his talk. Here are some of the slides:



### Introduction to CHIRP



David Hornbaker – N1DCH

March 17<sup>th</sup> 2021

Minuteman Repeater Association

### Cables

- Cables based on FTDI chip are recommended
- Avoid cables based on Prolific PL-2303
  - Highly cloned chipset
  - Driver issues
- Beware of clones
  - Almost all clones have driver issues
- RT Systems cables
  - FTDI cables with a unique hardware ID, shows up as generic serial device
  - May have issues with Chirp
- Make your own cable
  - Breakout board available from Sparkfun, Adafruit
- More cable information is available on the Chirp website
  - <https://chirp.danplanet.com/projects/chirp/wiki/CableGuide>

### Chirp Benefits

- Large number of radios supported
- Community support
- Windows, Mac OSX, Linux versions available
- Preferred method of programming for many radios (Wouxun, Baofeng)
- Frequency data is portable from one radio to another
- Repeater databases
- Other service frequency lists (railroad, MURS, FRS, GMRS)
- CSV files.

### Downloading Chirp

<http://chirp.danplanet.com>

Stable builds? Daily builds?

the latest daily build. Update frequently.

### Step 1: Download contents from the radio

- Start CHIRP and Click the Radio menu and choose Download From Radio
- The Clone window opens
- Select the serial port you intend to use from the drop down menu
- Select the correct Vendor and (if necessary) the appropriate Model
- Click OK to start the download process. Clone-mode radios will display a progress bar indicating how much of the image has been downloaded. Live-mode radios will immediately jump to the memory editor and begin to populate it with memories as they are downloaded from the radio.

### Step 2: Make changes

Once you have the radio contents displayed in the memory editor, you can proceed to make your changes. This may include manual edits or importing memories from other sources. If you are using a clone-mode radio, you may wish to save a .img file of your radio as and after you make your changes. Live mode radio users will have their changes immediately take effect in the radio and do not need to proceed to Step 3.

### Step 3: Upload changes back to the radio

- Once you have made all the edits you need to make, you should upload your image back to the radio. With your image open, go to the Radio menu and choose Upload To Radio. The Vendor and Model are already known, so all you need to do is choose a serial port.
- Clone mode radios only

Demo



### Supported Websites

[RadioReference](#)  
[RepeaterBook](#)  
[przemieniki.net](#)  
[RFinder](#)

### Questions?

- FAQ:
  - <http://chirp.danplanet.com/projects/chirp/wiki/FAQ>
- Join the mailing list (alot of emails)
  - [http://intrepid.danplanet.com/mailman/listinfo/chirp\\_users](http://intrepid.danplanet.com/mailman/listinfo/chirp_users)

## **Special Presentation this summer on the MMRA repeater system and the control codes available to members.**

**Could you make more effective use of the linked systems capabilities?**

**21 July 2021 ~ 7:30 ~ Zoom  
Kevin Paetzold ~ K1KWP**

When mobile, and in a QSO on one of the MMRA repeaters, I sometimes either leave the coverage area of the repeater I am on or perhaps I needed to park in a dead spot for the repeater I am on. In this scenario I could just say 73 (hopefully that transmission makes it) or I could link up another repeater on the fly so that I can continue the QSO. I actually do this kind of thing whenever it is convenient without thinking twice. I have had many QSOs that started in one part of the state and continued for 80+ miles as I traveled across the MMRA coverage area.

Another example is that an EchoLink station has connected to HUB1 that I want to talk to. However my signal into HUB1 (449.925) is not very good at that time. I check and find out that my signal into Mendon (146.61 which is normally full time linked) is also not very good. However my signal into Marlboro 147.27 is very good. In that scenario I could temporarily link up 147.27 to HUB1 so I can have the QSO.

Control codes to do this kind of thing are available to members (via login to the MMRA website). There are also codes which can temporarily unlink repeaters, make outgoing EchoLink/IRLP connections, and do other things as well.

Surprisingly it seems that not many members ever seem to use these codes. There have been requests (made during the TIAOS net and at other times) to have a presentation on how the repeater system, its linking, and other features actually work. This summer on Wednesday July 21 at 7:30PM we will have a special meeting/presentation (via zoom) on the topics above.

Historically, disclosure of these control codes was considered one of the benefits of MMRA membership and this information was not made available to non-members. During this presentation the control codes will be openly disclosed and demonstrated. For that reason this zoom meeting is expected to be for members only and unlike other meetings is not expected to be open to amateurs who are not members. Zoom meeting recordings have not been made available (so far) although it has been discussed. It is likely that there will not be a recording of this meeting.

Also discussed will be how the various repeaters actually link up and various different linked/unlinked modes. Also we expect to unveil an online, web based, automatically updated status page for the MMRA system. Knowledge of how the system works and ability to change things also allows people to potentially help diagnose any network/repeater issues that come up. This knowledge can be useful if you are a net control for a net on the repeater system including public service activities.

## EME – The Ultimate DX ~ Don Lacroix AA1FE

Earth-Moon-Earth communications, commonly known as EME, is a unique story onto itself. There have been several claims to its early development, military experimentation from countries such as Germany, the then Soviet Union and the United States all with one idea, to send a signal to the surface of the moon and have it return back to Earth and to be able to hear it. The average distance from the Earth to the Moon is approximately 237,568 miles which would make a round trip signal back to Earth a startling 475,136 miles, let alone all the other logistics involved. To the amateur radio hobbyist at the time, the idea may have sounded like something from a Jules Verne novel or when Alexander Graham Bell first heard sound from his invention of the telephone. So, let's go several decades back and see what history has to say.

Today we take it for granted that such a transmission is fairly easy to do given today's technology such as computers, software, antenna systems, specialize antenna rotors and the radio equipment with all the various modes of transmission. Our knowledge about the subject of EME can be easily obtained at any good bookstore or the internet on how to get started and get a good idea of its unique communications theory and characteristics. Back in the early 1940's into the early 1950's this information was slowly developing and understanding and testing all these new theories was just beginning. It took the work of some very good engineers and scientist to experiment, calculate using advance mathematics, tweak and re-tweak until one day, like Alexander Graham Bell's telephone, it worked. For amateur radio it would be called "The Ultimate DX".

With tension between the United States and the Soviet Union intensifying post-World War II, and in constant competition with each other for various reasons, such as advances with the jet engine to the dawn of the space age, the space race was on. A few amateur radio clubs and its members began to take interest and took great care during their EME experimenting to insure not to cause interference with the evolving military technology in radar, communications and early warning systems of the times. To better understand this, we need to take a look at the timeline of EME during the war and post-World War II until when amateur radio finally made its first successful transmission.

Germany, mid 1943-1944, according to a report by a Dr. Ing. W. Stepp in a magazine called "Der Seewart", Dr. Stepp reports that in late 1943 Germany was doing experiments using radio measuring equipment in which radar reflections of the moon were received and recognized but more test needed to be done. In autumn 1943 another experimental radar was built on Rugen Island on the shore of the Baltic Sea. The codename for the new radar and project was called "Wurzmann." In January 1944 the radar was inadvertently beamed towards the rising Moon while some radar measurements were on the way. Suddenly, they observed a strange series of pulses just 2 then 5 seconds after the transmission. This effect disappeared after a short time as the Moon missed the antenna lobe. This Moon "echo" effect was tested the next day during the time of the moonrise with positive result. Thus, the first EME history was written in 1944 when the first EME echoes were received by the German Wurzmann radar according to the article by Dr. Ing. W. Stepp.

Enter the United States in January 1946. The "moon bounce" research and development program known as "Project Diane" was on-going by the United States Military in the years after World War II, with the project's goal was to bounce radio signals off the Moon and receive the reflected signals. The first successful reception of "echoes" off the Moon was carried out at Fort Monmouth, New Jersey and was successful on January 10, 1946 by John H. DeWitt and chief scientist E. King Stodola as part of the project. On that day, John DeWitt and E. King Stodola sent quarter second pulses of radio transmissions every four

## EME – The Ultimate DX ~ Don Lacroix AA1FE – cont'd

seconds towards the Moon. About 2.5 seconds after their first transmission, they detected an echo, making this the first successful US radar contact with the Moon.

Finally, amateur radio hobbyists entered into the fray in 1950 by EME pioneer hams Ross Bateman, W4A0, and Bill Smith, W3GKP. They decided to call their experiment with EME "Project Moonbeam" and after three long years of ups and downs that was kept mostly secret, and finally after a few modifications to a rhombic array, on January 23, 1953 this combination of transmitter, receiver and antennas produced its first positive results when a series of weak echoes was received by Ted Tuckerman, W3LZD. Tests from the following afternoon produced nothing, but beginning at 1533 EST on January 27, a whole series of echoes was received and recorded by Ross Bateman, W4A0. With this success and irrefutable data, they could now reveal to the ham radio community their findings. This was big news for amateur radio and to the hobby in 1953.

It wasn't until years later that the first amateur radio moon-bounce two-way microwave communication between California and Massachusetts took place on July 17, 1960 between two distant points. This contact marks an important milestone in the development of amateur radio since that day on January 23, 1953. The historic contact was made between the members of the Eimac Radio Club in San Carlos, California and Mr. Sam Harris with the Rhododendron Swamp VHF Society in Medfield, Mass. The first transmission was from West (W6HB) to East (W1BU). The pattern was then reversed and the first amateur radio coast-to-coast communication via the moon was a complete success.

Lastly, on March 25, 2009 a group of German amateur radio hobbyists had successfully bounced a radio signal off the planet Venus, over 31 million miles away, and received it back on Earth, which is now known as Earth-Venus-Earth or EVE. Peter Guelzow, DB2OS, President of AMSAT-DL, writes: *"On March 25, 2009, the ground station at the Bochum observatory transmitted radio signals to Venus. After traveling almost 100 million kilometers, and a round trip delay of about 5 minutes, they were clearly received as echoes from the surface of Venus. Receiving these planetary echoes is a first for Germany and Europe. In addition, this is the farthest distance crossed by radio amateurs, over 100 times further than echoes from the moon (EME reflections)."*

### **Share a Shack!** →→ now including **Share your History!**

#### **Editor's Note:**

**Well, there were no SHACK inputs this time :( BUT...**

As you know, I have been soliciting inputs to the newsletter to share your shack. With our 50th anniversary this year, we will be adding your remembrances of early MMRA history. So **let me know**. Send your photos/text to [newsletter@mmra.org](mailto:newsletter@mmra.org). (Please reduce your photos to 1000 pixels max.) This feature will appear based on your input!

**Well, there were no HISTORY inputs this time as well :(**

However: check out this history of the MMRA: <https://www.mmra.org/news.html>

Larry, W1DYJ

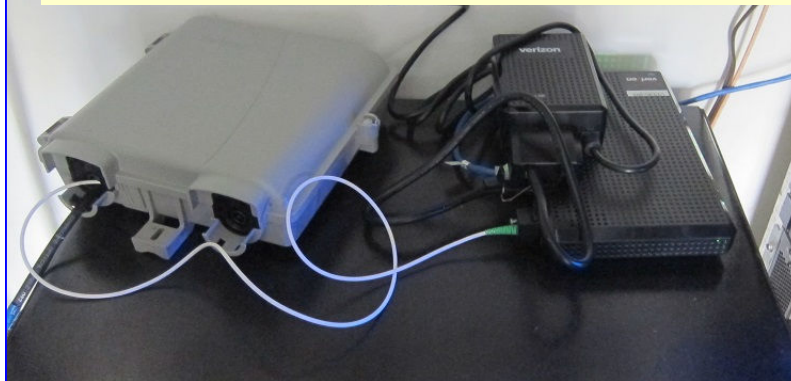


## Technical Update

**Bob DeMattia, K1IW ~ Technical Officer**

There are a few updates on the MMRA technical front this month. Back in January, we found that our DSL service at Sligo stopped working. This was not unusual, as the line from the central office to our location had been damaged several times in the past. It turns out this time was different however - it stopped working because Verizon was no longer providing DSL service in Marlborough. We were able to secure FIOS internet service as a replacement, and for only slightly more than we were paying for DSL. The Verizon technician braved 15 degrees and a snow storm to install our line.

The FIOS junction and ONT, sitting on top of the 223.94 repeater cabinet. Now that the weather is a bit nicer, these will be wall mounted.



The FIOS router, provides wired and wireless LAN in the Marlborough West shelter.



In other news, last February, the MMRA board approved the installation of a weather station at Marlborough West. This was installed in April. Weather data is updated to the MMRA website every fifteen minutes. The webpage also shows historical data for the past day, month, week, and year - your choice: <http://www.mmra.org/weewx>.

The shelter-mounted mast at Sligo, with the anemometer, temperature and barometric pressure sensors mounted in the lowest position. You can see the 449.925 link antenna pointed North to Hollis, NH above it, followed by the 6m link antenna, 147.27 link antenna, and the V2000 tribander at the top that serves as the antenna for 6m receiver, APRS station, and 447.875 repeater.





## Technical Update

**Bob DeMattia, K1IW ~ Technical Officer**

The Oregon Scientific WM-918 weather station console. The WM-918 is a wired version of the more popular WMR-918. Being wired, it is less prone to interference from UHF transmitters. It also doesn't require regular replacement of batteries in the mast-mounted sensors, and also provides internal humidity measurements which the newer wireless models lack.



The Meanwell switching power supply has been installed at Quincy. This means our power bill should go back down.

Finally, the Mendon link transmitter has been repaired. The NEW link radio, installed last fall, failed shortly after being installed with the transmitter operating 5KHz low. **Bryan, W1BRI**, took apart, rebuilt, and thoroughly tested the older link radio which had been swapped out - and that radio went back into service in April. This allows '61 to once again be linked to HUB1 full time.

### ***RF Exposure Rules Changing: From [ema.arrl.org](http://ema.arrl.org):***

The April 27, 2021 RF Exposure Rules Zoom Discussion Eastern MA Technical Coordinator Dan Brown, W1DAN, has been posted to the Eastern MA ARRL website at:

[https://drive.google.com/drive/folders/1\\_qIGZhHyMrha-axJt87Dcu0UZuJO0t8F](https://drive.google.com/drive/folders/1_qIGZhHyMrha-axJt87Dcu0UZuJO0t8F)

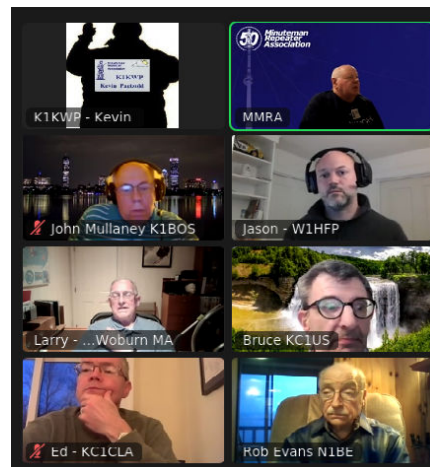
The discussion was a huge hit. The maximum number of 100 connections for the call was hit just as the discussion started; many late arrivals were disappointed to be turned away, but W1DAN plans to hold at least one additional online discussion using a larger "Zoom room."

## 21 April 2021 Business Meeting — Minutes

President N1DCH called the ZOOM meeting to order at 7:35 pm local.

### Present:

- N1DCH, Dave, President / Trustee
- K1KWP, Kevin, Treasurer / Emergency Coordinator
- W1HFP, Jason, Secretary
- KC1US, Bruce, Trustee / Public Service Coordinator
- Rob, N1BE, Director / Trustee
- Ed. KC1CLA, Trustee / Net Control
- John. K1BOS, Trustee
- Larry, W1DYJ, Trustee / Net Control / Newsletter Editor



### Old Business

#### Weather Station at Sligo

Bob, K1IW, has installed the previously approved weather station on the link antenna mast at the Sligo shelter. The link is: <http://www.mmra.org/weewx> and is on the left hand pick list on the MMRA home page.

#### Swap Net on MMRA Repeaters

This is active; however there seems to be some audio issues. [Check it out on Wednesdays from 9 – 9:55 pm local.]

#### 50th Anniversary

Plans are still in progress, but are a bit on hold do to COVID-19. We still need to find an appropriate summer-time site.

#### How-To-Session

This is now scheduled for 21 July. Kevin, K1KWP, promises “no secrets.”

#### Repeater Update

Bryan, W1BRI, repaired and updated the Mendon link radio. It can now link to the Hub.

Bob, K1IW, is replacing the SIM chips at the repeater sites as needed in order to keep our internet links active.

The DSL service at Sligo has been moved to FIOS, as Verizon ended DSL service with no notice.

#### W1MRA Renewal

Our W1MRA FCC license was to expire in June. Kevin, K1KWP, and Dave, N1DCH, met with our long-time trustee Bill, N1QPR, and Shelley, K1VJE, to sign the renewal papers.



### Lowell Trustee

Our repeater in Lowell, 442.25, is currently part of the group of repeaters with N1QPR (see above) as trustee. All other repeaters under Bill’s trusteeship are in Marlborough. As it is always good to have a trustee who can monitor their repeater, it would be good if we had a trustee who lived closer to Lowell. Is there an **ACTIVE** member who lives closer to Lowell and who would be interested in being it’s trustee?

If you are interested in being a trustee for our Lowell repeater, please read the **MMRA Policy: Control Operator Responsibilities** at <https://www.mmra.org/MMRACOPolicy-March2019.pdf> to

## 21 February 2021 Business Meeting — Minutes — continued

understand the minimal responsibilities, and then send an email to [contact@mmra.org](mailto:contact@mmra.org) to let the Board of Directors know of your interest.

### TlaOS Net Update

The N1IMO-N1IMN network has been linked in for the network. This group of repeaters consists of ten repeaters in New Hampshire: <https://n1imo-n1imn.us>. Please welcome our neighbors to the north on Tuesday nights at 8 pm local.

### Elections

All current board members, except KC1JUO, have indicated they are running for reelection. At this point, no one has expressed interest in the clerk position. If anyone is interested, they should send an email to [contact@mmra.org](mailto:contact@mmra.org) indicating their interest. As the Board of Directors can appoint a person to this position between Annual Meetings, your interest will be welcomed.

### Upcoming Meetings

- May – Charles, KC1JUO SDR Presentation - Zoom
- June – Business Meeting - Zoom
- July – Kevin, K1KWP Using the MMRA Repeater System - Zoom
- August – Business Meeting - Zoom
- September – Dave, N1DCH Shortened 80m End Fed Half Wave Antenna - Zoom
- October – Business Meeting - Zoom

The meeting was adjourned at 8:35 pm local, after some interesting discussion about “obsolete software languages I once knew.”

Submitted by Larry Banks, W1DYJ, Clerk pro-tem

## Treasurer's Report ~ Kevin Paetzold ~ K1KWP

The MMRA receives a significant amount of donations each year. On behalf of the club I would like to thank people below who donated since my list in the previous newsletter:

**KC1DMR, K1CPD, KC1OXG, K1THE.**

Hopefully I did not leave anyone off (and if I did I am sorry):

Dues collected so far for this membership year are \$6295.00. This is an increase of \$480 from the previous year; 245 members have paid dues so far this membership year. For the 2021-2022 year (starts September 1) we have collected \$1990 and for the 2022-2023 year (starts September 1, 2022) we have collected \$250.

Given all the fixed costs that I am aware of and the spending which is already approved (that I am aware of) we may end this year in black by \$1651. Of course there may be surprises that will result in more spending.

The previous 3 membership years were also in the black. However keep in mind that we have some years where we have large expenditures resulted in the club being in the red for \$5K, \$7K, \$3K. Often the club's largest expenses are antenna projects which usually require professional/insured climbers.

## Upcoming MMRA Meetings

Note: Meeting locations and times are subject to change.

Consult the MMRA website for the most up-to-date information.  
Teleconference numbers will be available one week before a business meeting—if you wish to attend, email [contact@mmra.org](mailto:contact@mmra.org).

Wednesday, 19 May ~ Annual Meeting & Elections ~ 7:30 PM  
Program: SDR Presentation  
Charles Miller, KC1JUO  
Location: ZOOM Teleconference

Wednesday, 16 June ~ Business Meeting ~ 7:30 PM  
Location: ZOOM Teleconference

Wednesday, 21 July ~ Membership Meeting ~ 7:30 PM  
Program: Using the MMRA Repeater System  
Kevin, K1KWP  
Location: ZOOM Teleconference

Wednesday, 18 August ~ Business Meeting ~ 7:30 PM  
Location: ZOOM Teleconference

Sunday, 12 September ~ 7:30 PM  
Program: The MMRA Repeater System  
Location: HamXposition, Marlboro MA *In Person!!! [we hope]*

Wednesday, 15 September ~ Membership Meeting ~ 7:30 PM  
Program: Shortened 80m End Fed Half Wave Antenna  
Dave, N1DCH - Zoom  
Location: ZOOM Teleconference

Wednesday, 20 October – Business Meeting ~ 7:30 PM  
Location: ??????????????????

## Don't Forget! Join Us.

Every Tuesday @ 8 PM

Technical, Informational and Other Stuff Net

The MMRA's repeaters are linked Tuesday nights for the TIOS Net. Keep up with what's happening in the MMRA and ask your ham related questions.

### Net Control Operators:

Week 1	W1DYJ	Larry Banks
Week 2	KB1OQA	Tom Turner
Week 3	KC1CLA	Ed Curley
Week 4	K1KWP	Kevin Paetzold
Week 5	K1BTZ	Jonathan Traum

To connect using Echolink / IRLP during the Net:

- Echolink Conference \*NEW-ENG2\*
- IRLP node 4133

**NOTE: we need another NC to be available as a substitute. If you are interested, email [W1DYJ@mmra.org](mailto:W1DYJ@mmra.org)**

## MMRA Leaders

### Executive Board — Officers

President	Dave Hornbaker	N1DCH
Vice President	John Spencer	WA1MDD
Secretary	Jason Peardon	W1HFP
Treasurer	Kevin Paetzold	K1KWP
Clerk	Charles Miller	KC1JUO

### Executive Board — Directors

Director »2021	Bob DeMattia	K1IW
Director »2021	Roger Coulson	WA1NVC
Director »2022	Rob Evans	N1BE
Director »2022	James Lee	N1DDK

### Technical Officer

Technical Officer	Bob DeMattia	K1IW
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### President Emeritus

Bob DeMattia	K1IW
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### Technical Officer Emeritus

Bryan Cerqua	W1BRI
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### Repeater Trustees

* Belmont 145.43	Ed Curley	KC1CLA
* Boston 146.82	John Mullaney	K1BOS
* Boston 927.0625	Rick Zach	K1RJZ
* Brookline 145.16	Joyce DeMattia	K1IWW
* Brookline Rcv 146.82	Bob Phinney	K5TEC
* Burlington 224.88	Bruce Pigott	KC1US
* Hopkinton 449.575	Bryan Cerqua	W1BRI
* Marlborough 53.81	Bryan Cerqua	W1BRI
* Marlborough: 29.68, 144.39, 147.27, 223.94, 448.225, 449.925, 927.70	Lowell 442.25 all as W1MRA	
	Bill Northup	N1QPR
* Mendon 146.61	Kevin Paetzold	K1KWP
* N. Reading 146.715	Bruce Pigott	KC1US
* N. Reading 446.775	Larry Banks	W1DYJ
* Quincy 224.40	Bill Dunn	N1KUG
* Quincy 146.67	Bryan Cerqua	W1BRI
* Weston 146.79	Rob Evans	N1BE
* Weston 224.70	Eddie Mulhern	N1NOM
* Weston 442.70	Dave Hornbaker	N1DCH

### Additional, non-Voting

* Newsletter Editor	Larry Banks	W1DYJ
* Emerg. Coord.	Kevin Paetzold	K1KWP
* Pub. Serv. Coord.	Bruce Pigott	KC1US
* VEC Liaison	Bill Wade	K1IJ
* Net Manager	Larry Banks	W1DYJ
* Web Page Editor	Bob DeMattia	K1IW

\* Appointed



## Contacting the MMRA



Members: [mmra@groups.io](mailto:mmra@groups.io)

*Note: This may take some time.*

*You must be approved by the moderator.*

Officers: [contact@mmra.org](mailto:contact@mmra.org)

Control Ops: [control-ops@mmra.org](mailto:control-ops@mmra.org)



<http://www.mmra.org/>



@mmraham



<https://www.facebook.com/mmraham>

### Ask your friends to become a member

Just let them know that it is not fully automated. Although they can log into the MMRA website immediately, they need to be manually processed. This could take up to week.

If you haven't updated your MMRA profile in a while, now is the time!

Go to < [MMRA.ORG](http://www.mmra.org) > and log in to do so.

Previous issues of the MMRA Newsletter are available at:

[www.mmra.org](http://www.mmra.org) > [Newsletter Archive](#) (on the left)

### MMRA VE Sessions

Stay tuned for more in the future.

## Waltham Wranglers Swap Net

The MMRA Network connects to this swap net every Wednesday at 8:45 pm local and promptly at 9:59 pm switches over to the Heavy Hitters Traffic Net.

## Heavy Hitters Traffic Net

This net is active on our repeaters Sunday, Monday, Wednesday, and Friday evenings from 10—11 PM.

In both cases, the repeaters that are active are:

2m: Mendon (61), Boston (82), North Reading (715), Quincy (67) and Marlborough (27)

220: Quincy (224.40), Marlborough (223.94)

440: Marlborough (449.925), North Reading (446.775), Hopkinton (449.575)

## Get connected on the MMRA Repeater System ~ Dave Hornbaker N1DCH

What is the best way to get connected on the MMRA repeater system? Try announcing yourself! Just say your call sign followed by "listening". If you want, you can include the last 3 digits of the repeater frequency. For example, "N1DCH listening" or maybe "N1DCH listening on 925", you may very well get a response. Try to connect by announcing yourself several times.

Most of the time, Marlborough Hub1 (449.495) is linked to the following repeaters, Boston (146.820), North Reading (446.775), Mendon (146.610), Lowell (442.250), and Hopkinton (449.575). Remember that when the repeaters are linked, you need to wait two or three seconds after you key up and before you speak. This is especially important on the TlaOS net on Tuesday when most of the repeaters are linked.

You can also link (and delink) the repeaters yourself. See the information you received when you became a member, or check the [User Control Codes](#) once you log into the MMRA web.

Try one of the non-linked repeaters too. There are Hams monitoring them as well. For more information on the repeater network and how it is linked at various times, check out [https://mmra.org/repeaters/repeater\\_linking.html](https://mmra.org/repeaters/repeater_linking.html).